WEST

End of Result Set

Generate Collection | Print

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DOCUMENT-IDENTIFIER: US 5848396 A
TITLE: Method and apparatus for determining behavioral profile of a computer user

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Brief Summary Text (14):
The tracking and profiling member also records demographics of each user. As a result, the data assembly is able to transmit advertisements for display to users based on psychographic and demographic profiles of the user to provide targeted marketing.

Brief Summary Text (16):
In addition, a subroutine coupled to the module performs a regression analysis on the recorded history of users viewing the ads. The subroutine refines profiles of target users based on the regression analysis. Preferably, the regression analysis weights the relative importance of psychographic and/or demographic characteristics of users. As such, over time, the advertisements become better targeted to users having an interest in said information (content and presentation/format of ad), and hence the invention method and apparatus provides automatic targeting of audiences (target users) and self-tailoring of target profiles.

Detailed Description Text (3):
Also linked to communication line 23 are various servers 25a, 25b which provide to end users access to the Internet (i.e., access to potentially all other networks 19, and hence processors 11, 13, 15, 17 connected to the Internet). The present invention is a software program 31 operated on and connected through a server 27 to the Internet for communication among the various networks 19 and/or processors 11, 13, 15, 17 and other end users connected through respective servers 25. In the preferred embodiment, the server 27 is a Digital Equipment Corp. Alpha server cluster (e.g., 2400-8000 Series), or a multiplicity of similar such servers. Server 27 runs Oracle 2.0 Webserver as HyperText Transfer Protocol (HTTP) server software to support operation of present invention program 31.

Detailed Description Text (4):
Upon an end user logging onto program 31 through common Internet protocol, program 31 generates an initial screen view (commonly known as the "Home Page") for display to the end user. During the user's first visit, the initial screen view provides menu selections of various agate information (e.g., stock market data, weather, sports, etc.) Upon user selection (using a click of a mouse or other input means) of a menu item, program 31 displays corresponding up-to-date information. Similarly, each time the user selects another menu item, program 31 generates and displays current agate information relating to that selection.

Detailed Description Text (14):
In addition, for each advertisement, advertisement module 75 (and/or user profiling member 73) records (a) the number of times and/or number of users to whom the advertisement has been displayed, (b) the number of times/users who have requested more information (via a click of a mouse on a corresponding menu selection) regarding the advertisement, and when possible (c) the number of purchases obtained through program 31's display of the advertisement. As such, advertisement module 75 holds performance data for each advertisement, and hence enables program controller 79 to

provide performance reports to sponsors who log on to program 31. Various regression techniques and the like are used in the performance reports in a manner consistent with the state of the art.

Detailed Description Text (22):
The User Action History Object 37e stores each click of a mouse and corresponding cursor position to effectively record the user's motions/movements in a session. In particular, as illustrated in FIG. 3f, User Action History Object 37e records (a) date and time of action, (b) session identifier (indicating in which session of the User Session Object 37d the subject action occurred), (c) sequence or order number of the action in the series of actions that occurred in a common session, (d) identification of screen view displayed at time action occurred, (e) identification of item selected by user (via click of mouse with cursor positioned on item), and (f) screen position of selected item (e.g., first, second or third menu item, right or left side).

Detailed Description Text (28):
In each of the foregoing formats, the preferred embodiment includes incorporation of ads or sponsorship indications as top and/or closing banners. The Home Page 43 (FIG. 4a) provides scores of recent games and news in the "sports" category. If a user selects the sports category from the Home Page, a Page Display Object 35c generates various screens bearing sports information and news. For sports pages/screen views, there are seven page/screen formats of Page Display Object 35c outlined in Appendix I. Briefly, a "General Sports Page" format includes (a) game scores and standings, by league, for professional and collegiate sports, and (b) player standings (professional and collegiate) for baseball, football, hockey and basketball. Statistics are updated and displayed during play of a game, so that the General Sports Page provides game-in-progress statistics in realtime. Also a news window is provided for each sport with a link to a "News Page" (object) for more news. The "News Page" format includes information regarding major trades, signings and injuries. In the preferred embodiment, a scrolling window of latest news is also included.

Detailed Description Text (32):
Referring back to FIG. 4a, the Home Page 43 also provides a weather category. Shown on the Home Page 43 under that category is a long-range (e.g., 5-day) forecast for the user's local area and cities of interest to the user. Also that category provides storm warnings and the like for local areas and cities of interest. Upon user selection of the weather category, a Weather Page Display Object 35c enables display of weather information in one of two formats--a National Weather Page and a Regional Weather Page (Appendix I). Briefly, the "National Weather Page" format displays temperature and precipitation indications across a relevant map, along with textual descriptions. Audio forecast readings are also provided. Incorporation of a sponsorship ad is provided at the top and/or bottom of the screen view (termed "banners" in Appendix I). The "Regional Weather Page" displays (a) a regional map (e.g., state) with temperature and precipitation indications, (b) a graphical forecast (e.g., high and low temperatures and sun/cloudy, rain or snow predictions for the next several days), and (c) a detailed forecast with tabular and textual descriptions. Also the Regional Weather Page provides weather warnings and advertisements at the bottom of the screen view in the preferred embodiment.

Detailed Description Text (40):
In the preferred embodiment, program 31 displays user generated messages and system generated notices (or warnings) to the end user in addition to the foregoing "Pages"/screen views of category information. FIG. 4b illustrates the preferred Message/Notice Object 45 screen view format. In the case of one user sending a message to another user through program 31, the displayed message includes indications of the sending and intended receiving users along with an identifier, subject and message, among other indicia. Attachments or additional information are enabled through a page reference (Page ID) and/or link indication. If the recipient selects (by a click of a mouse) the page reference or link indication, program 31 generates a screen view (i.e., Page Display Object 35c) displaying the additional information. Further messages are transmitted through E-mail or internally/local to program 31.

Detailed Description Text (51):
Each sponsor has one or more ad packages maintained by respective Ad Package Objects 33b of the sponsor. In each Ad Package Object 33b (FIG. 5b) there is indicated the

sponsor ID, start and end dates and times, and pricing of the ad packages. The pricing may be dependent on the number of times the ad is viewed by users (i.e., a "hit"), number of times a user selects to view more information from the ad (i.e., a "click through") and/or the number of times an actual order is generated. Pricing by the number of hits and number of click throughs by exact numbers or maximum numbers is indicated in the Ad Package Object 33b. Thus Ad Package Objects 33b serve as billing entities for the program 31 administrator. Also Ad Package Object 33b records the number of hits and click throughs as tracked/monitored during user operation of program 31.

Detailed Description Text (54):
Another part of the Sponsor Objects 33a-d is a computer subroutine 41 (FIG. 3a) which provides performance reporting. This enables the sponsors of the advertisements to obtain reports on successful use of the advertisements. The types of reports provided in the preferred embodiment of program 31 are outlined in Appendix IV. In that Appendix, "HTs" means hits and "CTs" means click throughs.

Detailed Description Text (55):
Briefly, an Overview Report provides a review by ad package. The number of hits and number of click throughs purchased and achieved are indicated among the cost of the package and date specified by the ad package.

Detailed Description Text (56):
A Detailed Package Report provides information on individual ad packages, including showing the ads included in the package with video and audio portions intact. The demographic profiling requested and demographic breakdown of success with respect to a control group are also provided in the Detailed Package Report. Also the number of hits and click throughs purchased and achieved are designated in the Detailed Package Report.

Detailed Description Text (57):
In the Demographic Response Rates Report, all ad packages of a sponsor or selected ones are compared. In particular, the ad success by the sponsor-targeted demographic groups is compared. Further the reporting subroutine 41 of program 31 calculates a regression on the targeted demographic groups for the ads, and the results of the regression calculation are used to suggest other demographic characteristics that are important factors in the number of click throughs and/or number of purchases. The advertiser may also run a complete regression report for all or certain ad packages.

Detailed Description Text (58):
A Psychographic Profiling Report is similar to the Demographic Response Report except a psychographic profile is used instead of a demographic profile. The reporting subroutine 41 makes regression calculations, and results of the calculations enable program 31 to suggest other psychographic characteristics that are important factors in the click throughs and/or purchases of the ads for a given sponsor.

Detailed Description Text (59):
Other report formats include a U.S. or world mapping to show user density of program 31 versus a sponsor's click through or purchase density. Traditional regression reporting is also enabled. Custom reports which allow the sponsor to select ad packages to be analyzed and variables to consider are also enabled by reporting subroutine 41.

Detailed Description Text (66):
Say for example, the new user selected (i.e., "clicked on") the "Stock Data" option from the Home Page. Program 31 responds by displaying a screen view featuring the exchange prices from various global exchanges. Main routine 39 also enables a banner to appear at the top of the screen reading (for example) "Brought to you by Dean Witter". The user is able to select/click on this banner to effectively request more Dean Witter information from program 31. To accomplish this, the screen view contains a hyperlink formed of the URL for Dean Witter information on the Internet, and program 31 would list the new user as the requester and the current screen view as the page from which he made the request.

Detailed Description Text (71):

To rank the advertisements determined to be appropriate, main routine 39 calculates ##EQU1## where #hits and #clickthrus throughs (i.e. number of hits and number of click throughs) purchased and achieved are stored in Ad Package Objects 33b;

Detailed Description Text (73):
D is a percentage discount of the cost of the ad package, if the ad package is not completed i.e., number of purchased hits and click throughs is not met.

Detailed Description Text (74):
In the preferred embodiment, program 31 automates weighting of criteria and in real time adjusts the intended audience profile of advertisements. To that end, program 31 tracks demographic and/or psychographic criteria of users who view ("hit") and/or select (i.e., "click through") advertisements. Then program 31 performs a traditional regression analysis of the tracked criteria, which results in (i) null and alternative hypothesis testing to determine significance (T-test or .chi..sup.2 test) of criteria/variables, and in (ii) squared correlation and squared correlation testing (R.sup.2) to determine the weight of each criteria. See D. Freeman, R. Pisani and R. Purves, "Statistics", publishers W. W. Norten & Co., N.Y. 1978 pages 439-444; and Murray Speigel, "Theory and Problems of Statistics," McGraw Hill, N.Y. 1961 pages 270-273. Program 31 uses the T-score (of the T-test) to weight demographic and/or psychographic criteria and to effectively adjust the minimum total weight recorded in the Ad Series Object 33c (FIG. 5c). Program 31 continually performs the foregoing so as to maximize/optimize success of advertisements displayed through server 27.

Detailed Description Text (79):
Also the Home Page 43 displays an option to "click here for weather in other areas". Upon the user doing so and entering a home zip code, program 31 records that information in the User Action History Object 37e and User Object 37a (home zip code field). Program 31 also generates a Weather Page/Screen View for the designated zip code area using the Page Objects 35a,b,c as described above.

Detailed Description Text (82):
After some time, i.e., several sessions with program 31, the user's User Interface Object 37c holds indications of his categories of interest, including specific items of interest in each category of information, and his display/format preferences (colors, design, layout, etc.). Based on these recorded details, program 31 constantly and automatically tailors screen views (content and presentation) and advertisement selection (subject matter and presentation) for the user. As such, each time the user logs on, program 31 features items that are more interesting and appealing to him (at least potentially so). When a user selects (i.e., "clicks on") an advertisement, the corresponding Ad Package Object 33b records a "click through". This affects the ranking and criteria weighting calculations (discussed above) and further refines the terms of elements to be displayed/presented to a user. Thus the present invention provides a means and method for continually refining the target profile for advertisements.

Detailed Description Text (85):
In the case of a sponsor-user logging on, he may browse through the agate information (categories on the Home Page) and advertisements as described above for an end user, but more importantly he is able to place ads and obtain performance reports. This is accomplished as follows. When a company (sponsor) opens an account with the program administer, the program administrator obtains sponsor information and forms a corresponding Sponsor Object 33a. Advertising information and desired ads of the sponsor are recorded in respective objects. In particular, package information (number of click throughs purchased, pricing and timing details) are recorded in Ad Package Object 33b. Demographic targets are entered in Ad Series Object 33c, and the ad content and information are stored in the Ad Objects 33d.

Detailed Description Text (87):
To ensure that sponsors achieve the optimal result from the ads they place, program 31 combines regression analysis with the above weighting technique to achieve real-time, automatic optimization as discussed previously. Under this auto-targeting system, an ad package is shown to general users. After a large number (e.g., 10,000) hits, program 31 runs a regression on a subject Ad Package Object 33b to see what characteristics are important, and who (type of user profile) the ad appeals to most.

Program 31 then automatically enters weighting information based on that regression to create a targeted system and runs the advertisement (Ad Package Object 33b) again in front of this new targeted group. Program 31 then runs a regression every 10,000 hits, for example, including a group of 500 general people as a control, and adjusts the weighting. This continues until the Ad Package is exhausted (i.e., the number of hits and click throughs are achieved).

Detailed Description Text (90):
In response to the sponsor's 33 request for (i.e., selection of) a particular report, main routine 39 calls reporting subroutine 41 which queries Sponsor Object 33a, Ad Package Object 33b, Ad Series Objects 33c and Ads Objects 33d of the sponsor for details. For example, demographic elements, number of click throughs purchased, number achieved to date, number of hits, and time remaining in an advertisement are retrieved. Program 31 then checks the usage logs and retrieves the profile of users who selected the sponsor's advertisement, using the User Objects 37a. The program 31 then generates a report using this data and uses standard statistical regression techniques to find correlation between success and different demographic and/or usage information, and reports those as well. For example, a report comprises several defined elements, including overall success of the advertisement, breakdown by requested demographic elements, comparison of target market with control group, number of click through requested versus number achieved to date, as well as the time remaining in an advertisement. Finally, program 31 completes a regression analysis using data stored in Ad Package Objects 33b and User Objects 37, and suggests other demographic groups which a sponsor might want to consider for a subsequent ad.

Detailed Description Text (91):
When displayed to the sponsor-user, reports may also have ads integrated therein, similar to pages/screen views displayed to users discussed previously. In the example, say another company previously placed an ad targeting advertisers in the telecommunications industry. When the sponsor-user of the example logs in, the server 27 queries the corresponding Sponsor Object 33a for the company's SIC code and industry description. Recognizing a match, program 31 places the other company's ad on the report screen view displayed to the sponsor-user. If the sponsor-user clicks on the ad, program 31 records the hit for the other company's advertisement, just as it would with any other end user. As such, program 31 tracks advertiser usage as user information and develops demographic profiles for advertisers. This data is stored in the sponsor's Users Objects 33a (FIG. 5a). When the sponsor-user of the example decides to create a second package, the sponsor-user clicks on a "request an ad package" option and completes a form detailing the package (number of hits/click throughs requested, profiling, etc.). This time however the sponsor-user decides not to identify a target market for this ad. Impressed by the system's regression information, the sponsor-user decides instead to choose "auto target" and allow program 31 to make the most efficient use of the new ad. Graphics of the new ad are "pasted" onto the form and submitted to server 27.

Detailed Description Text (92):
In response, program 31 creates a new Ad Package Object 33b and links it to the company's existing Sponsor Object 33a. From the data entered into the form, main routine 39 completes the corresponding Ad Package Object 33b, Ad Series Object 33c and Ad Object 33d. In turn, program 31 displays a price quote for running the ad, and the sponsor-user clicks on the "accept" button. This advertisement package becomes available as soon as the sponsor-user has clicked on the "approved" button.

Detailed Description Text (94):
Say, for example, the sponsor-user decides to follow the success of this new ad and creates a customized report to do so. To build the report, the sponsor-user clicks on the "build custom report" option. Here subroutine 41 sends a report template to the sponsor-user. The sponsor-user selects the new ad series, which promoted a second telephone line for example, and requests a variety of reporting elements. The sponsor-user then names the report "Susan 1". The completed report information is stored in the Advertising Reporting Features Object (Appendix IV). The name of this report will now appear on the report options list of the sponsor when a sponsor-user subsequently logs on.

Detailed Description Text (97):

In order to achieve rapid and direct benefits from the detailed reporting of program 31, program 31 allows the sponsor to enter new advertising contracts on line. If a sponsor recognizes that, for example, 25-35 year-old women tend to purchase frequently and respond to their still, forest green colored advertisements most often, program 31 allows sponsors to place that type of ad in front of the subject target market segment during a reporting cycle. Thus, program 31 enables updating of the Sponsor and Ad Objects 33 during a reporting cycle to accommodate the foregoing.

Detailed Description Text (109):
Company data will also be a major competitive advantage of program 31. Program 31 allows users to examine company data, compare several companies, or compare an SIC-code group, all with a few clicks. Example: Joe Cool wants to compare Apple, IBM, and Compaq. Joe could enter these three into the same blanks used for stock data and, instead of stock data, select corporate information. Joe would receive from program 31 the balance sheets, income statements, etc., all in comparable columns. Joe could also switch to CAGR numbers (Compound Annual Growth Rate, pre-processed by program 31) which allow easier comparisons. Another click (i.e., command/selection) and Joe downloads these as a spreadsheet.

Detailed Description Text (115):
The greatest challenge here is how to locate the user. This can be done either with maps, zip codes/postal codes or by city (selectable lists which change by country). Alternatively, it is desirable to have a clickable map which allows the user to get to their location within 2 clicks. Also the system may offer a shortcut where the user can do it by postal code (and have a global database of postal codes). If postal codes duplicate, let the user select from the possible options.

Detailed Description Text (119):
Initially, users will be welcomed to a site featuring a graphic that represents all of the sports that program 31 covers and the previous day and current day's results, and can select the sport that interests them most, or go immediately to a game of interest. If a sport is selected, program 31 will present teams--or players, if the sport is an individual sport--(organized by standing in leagues, or as is otherwise appropriate by tradition), and allows users to click-through the league or a specific team. At this level (league, team or individual) and on all subsequent levels, the system will allow the user to "track this team" or "track this player."

Detailed Description Text (143):
Top banner

Detailed Description Text (185):
Closing Banner

Detailed Description Text (187):
Top Banner

Detailed Description Text (225):
Closing banner

Detailed Description Text (227):
Top banner

Detailed Description Text (231):
Bottom banner

Detailed Description Text (233):
Top banner

Detailed Description Text (240):
Bottom banner

Detailed Description Text (242):
Top banner

Detailed Description Text (246):

Bottom banner

Detailed Description Text (249):
Top banner

Detailed Description Text (258):
Bottom banner

Detailed Description Text (635):
allows users to click to locate

Detailed Description Text (731):
1. Overview of program 31 advertising

Detailed Description Text (739):
Can click through to detailed package reports

Other Reference Publication (16):
"Media Planning is Redefined in a New Era of Online Advertising," PR Newswire, (1996, Feb. 5).

CLAIMS:

5. Apparatus as claimed in claim 1 further comprising an advertising component coupled between the data assembly and tracking and profiling member, the advertising component holding a plurality of advertisements to be displayed to users on the network, in accordance with the psychographic profiles of the users, and for each advertisement, the advertising component providing a target profile of desired users to whom to display the advertisement.

6. Apparatus as claimed in claim 5 wherein the tracking and profiling member further provides demographic information about a user; and for each advertisement, the data assembly transmits the advertisement for display with agate information to users having a psychographic profile and a demographic profile substantially matching the target profile of the advertisement to provide targeted marketing.

7. Apparatus as claimed in claim 5 wherein the advertising component further records history of users viewing the advertisements, including for each advertisement, at least one of (i) number of times viewed by a user, (ii) number of times selected for further information, and (iii) number of times a purchase was obtained through the advertisement.

8. Apparatus as claimed in claim 7 further comprising a subroutine coupled to the advertising component for performing a regression analysis on the history of users viewing the advertisements, and therefrom the subroutine refining the advertisement target profiles of desired users to whom to display the advertisements.

14. In a computer network formed of a communication channel and a plurality of computers coupled to the communication channel for communication thereon, a method for defining profiles of target users comprising the steps of:

(a) providing a source of displayable information, the source holding a multiplicity of pieces of information;

(b) for each of certain pieces of information in the source, setting respective initial profiles of target users to receive the certain piece of information;

(c) transmitting each of the certain pieces of information across the communication channel such that each is displayed only to users having a profile substantially matching the respective initial profile of the certain piece of information;

(d) recording computer activity by users during display and user viewing of the certain pieces of information, said computer activity including physical activity and response by the user during viewing of the certain pieces of information;

(e) redefining the initial profiles of target users based on a regression analysis of the recorded computer activity of users, said redefining forming respective adjusted profiles of target users for each of said certain pieces of information; and

(f) continually repeating steps (c) through (e) with the adjusted profiles of the certain pieces of information, such that the certain pieces of information over time, become better targeted to users having an interest in said information and hence said method is self-tailoring.

25. A method as claimed in claim 24 wherein the step of reporting includes displaying to sponsors of the advertisements, characteristics of the adjusted profiles each time the profiles of target users is redefined, such that sponsors are able to view in real time the advertisements becoming better targeted.